

Some of the tribe were curious about why John insists that we sustain pressure and shear at the collagen barrier for at least 3-5 minutes, and asked for the science behind this. I spent some time explaining and documenting the science of it in an email that I thought I might share here -- but it is long and it may get booted.

Two reasons why John insists that, to be most effective in administering myofascial release, pressure and shear should be sustained at the barrier for at least 3-5 minutes or more:

1) The effects of sustaining pressure for 3-5 minutes or more are being researched by Paul Standley and associates at the University of Arizona in Phoenix - with regard to the release of healing messenger cells - cytokines- by way of the release of interleukins after a certain time frame. This is just one aspect of why we want to hold our releases for a long period. Not much happens before 3 minutes. But after 3 minutes there is an increased release of Interleukin 8 (anti-inflammatory), interleukin 3 (white blood cell formation) and interleukin 1b (nitric oxide, vasodilation) which all impact tissue recovery and healing.

This work is done in the lab on fascia -- not on humans... but...

There is also work being done by PT's in Spain (see below) that is looking at the effects of sustained release MFR on interleukins and immune system function.

The Journal of Alternative and Complementary Medicine published an article in 2013, responding to the question of whether the in vitro results of Paul Standley and associates reporting on cytokine stimulation from sustained myofascial release might be measured in vivo, on humans during treatment."

In their 2013 study, Fernández-Pérez et al(46) randomly assigned 39 healthy men to experimental or control groups. Each person in the experimental group underwent 3 predetermined myofascial release treatments while those in the control group remained in a resting position for the same amount of time. Venous blood was collected before and immediately following treatment. Change in counts of T lymphocytes (T cells) CD3, CD4, CD8, B lymphocyte CD19, and natural killer cells were examined between baseline and 20 minutes post-intervention. At baseline, experimental and control subjects did not differ significantly in any of the immunological markers and natural killer cells.

The myofascial release techniques applied to all healthy subjects included the suboccipital release for 4 minutes, compression of the 4th ventricle over the occipital area for 6 minutes, and anterior cervical fascia (thoracic inlet) release over the posterior neck and anterior pectoral areas for 10 minutes.

These techniques are among the many taught by JFB MFR therapy courses. Researchers found no significant time x group interaction effects on the T lymphocyte and natural killer cell counts; however, a higher CD19 count in the experimental group post-intervention ( $P = .001$ ) was measured. This is a strong indicator that sustained myofascial release has a positive effect of the modulation of the immune system, and further argues for the effect of energy flow, or subatomic particle transmission throughout the fascial web, a point of controversy among myofascial release researchers and therapists. (46)

Fernández-Pérez AM, Peralta-Ramirez MI, Pilat A, Moreno-Lorenzo C, Villaverde-Gutierrez C, Arroyo-Morales M. Can myofascial techniques modify immunological parameters? *J Alt Compl Med.* 2013;19(1):24-28.

Note - CD19 is an aspect of T cells and white blood cells -- important in immune system function.

2) Now .... the second reason we want to hold for 5 or more minutes has to do with biotensegrity, and the effects of the electrons and photons coming out of our hands, and our energy resonating with the energy of the patient. As our hands sink down after 90-120 seconds, we start to feel the movement of the fascia as it unwinds under our hands. This is the moment of resonance, where our energy wave and the patient's energy wave come together, and our energy is coursing throughout the entire fascial web, along the microtubules down to the nucleus of the cells. Biotensegrity can be further explained in the work of Donald Ingber.

Gerald Pollack (look him up on You Tube -) says that this feeling of butter melting or taffy stretching signals a literal softening or "melting" of the polysaccharide ground substance of the extracellular matrix that you can read in depth about in:

Pischinger A. *The Extracellular Matrix and Ground Regulation: Basis for a Holistic Biological Medicine.* Heine H, Eibl I, eds. Berkeley, CA: North Atlantic Books; 2007

Just like would happen if you put your warm hand on a bowl of Jello -- a type1 gel, -- the fascial polysaccharide ground substance -- a type 2 gel ---will melt from gel to solution with pressure and heat from our hands. Read more again in John's chapter in my book, coming out next month from Slack Books, and in the work of Gerald Pollack -- *Cells, Gels and the Engines of Life.*